

THE EFFECTIVENESS OF FUN ADVENTURE GAME MEDIA TO INCREASE THE COGNITIVE LEARNING OUTCOMES OF THE STUDENTS ON THE FUNGI MATERIAL FOR GRADE X OF SENIOR HIGH SCHOOL

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Abstract

Fun Adventure game media is one of the learning media containing a set of board game with questions cards related to Fungi material. The game designed as students adventured in the kingdom of fungi, hence that the learning activities can be more fun and meaningful. This research was aimed to describe the effectivity of fun adventure game media to increase the cognitive learning outcomes of the students on the fungi material for grade X of senior high school. This Fun Adventure game media had been developed based on the ASSURE method (Analyze Learner, State Objectives, Select Media and Materials, Utilize Media and Materials, Require Learner Performance and Evaluate and Revise). The effectiveness trial of the valid media was conducted on 15 students of grade X MIA 2 SMAN 1 Sidayu Gresik in March 2018. The effectiveness of the Fun Adventure game media in terms of learning outcomes of students with value of gain score was 0.73 (category highly increasing) with the overall indicator completed, and in terms of student responses with the percentage of 97.78% of students gave positive responses to the Fun Adventure game media. Based on these data, it can be concluded that Fun Adventure game media was effective to increase the cognitive learning outcomes of students.

Key words: effectiveness, Fun Adventure game media, cognitive learning outcomes, fungi material.

INTRODUCTION

In this twentieth century, education in Indonesia faced a variety of challenges that require a paradigm shift of education that was originally teaching oriented into learning, and teacher centered into a student centered, where the teacher acts as a facilitator and as a partner in learning (Harsono, 2008). Therefore, students were subject to actively seek, process, construct, and use knowledge. Students are also required to be proficient in thinking and learning. Skills in question include high-level thinking skills or Higher Order Thinking Skill (HOTS) (Humasah and Setyaningrum, 2013).

High-level thinking skills should be used in a learning approach, both for teaching and learning in the classroom and in the learning evaluations because it contains the elements of analyzing, evaluating, creating, and solving problem. With a high level of thinking, the student's cognitive abilities are strongly involved in various subject matter including on the subject matter of fungi (Nasution, 1989).

The fungi material was one of the materials listed in the 2013 curriculum of Basic Competence 3.7 which grouped fungi based on the characteristics, the way of reproduction, and linked its role in the life that is taught to grade X high school students. Based on the results of interview on grade X students of SMAN 1 Sidayu Gresik, most of them revealed that they were less interested in the fungi material, because it included quite a lot of subject matter, such as classification of fungi and the role and life cycle. A lot of coverage materials made students difficult for understanding the fungi material. Furthermore, with monotonous learning process, students finally will be fast saturated and bored to follow the learning process. It can be challenged for teachers to create a interested learning (Sriwahyuni and Mardono, 2016).

Based on the results of interview on the biology teacher of grade X of SMAN 1 Sidayu Gresik, the learning of fungi material is done by using the powerpoint slide media and a handbook. However, not all materials can be explained using verbal sentences including fungi material because some students appear less active and feel saturated quickly in the learning

process. It affected the acquisition of post-test results and daily test that was less satisfactory and most have not reached the maximum completeness criteria that established by the school. The mastery of fungi concepts of students showed a level of knowledge that did not store in long-term memory. It causes students to underestimate the fungi material. As a result, when learning is done, a week later, the student had forgotten when asked about the classification of fungi and about the life cycle. The material was less meaningful for students, will not be stored in long-term memory and easy for gotten by the students (Saguni, 2006).

Based on the facts, it was necessary to improve the thinking ways of students about biology learning, especially fungi material. The learning, that tends to memorize, should be packaged in a science process activity that involved student's high-order thinking skills. It can affect the improvement of learning outcomes. Therefore, to help students easy in learning fungi material, students need to learn high-level thinking through the use of instructional media in the form of games that it can live up the classroom atmosphere. It can encourage students to be actively involved in the learning process (Maharsari et al., 2009).

Fun Adventure game media was very suitable for learning fungi material. The game media had been valid based on its validity assessment by experts. The game designed as students adventured in the kingdom of fungi. It caused the learning activities can be more fun and meaningful. On each question card and board game, all of them contained fungi content and real pictures of fungi. Hence, while played, the students' memory will also record what they seen and learned during played the game. It made fungi material that includes material with such a lot of content, can be slowly received by the minds of students in a fun way. In addition, every question in Fun Adventure game media was mostly designed to stimulate students to analyze, evaluate, and create ideas in solving a problem around the fungus in life. It was expected to improve their cognitive learning outcomes on the fungi material through high-level thinking skills performed. In the Fun Adventure game, students were required to be able to answer questions on the question cards that students get when playing. Hence, there was a match academic that created competence between individuals to win the game in a sporty manner. It can trigger the spirit of students in improving learning achievement because students will compete to be the best in its class (Ibrahim, 2000).

Therefore, this study aimed to describe the effectivity of fun adventure game media that can

increase the cognitive learning outcomes of students on fungi material for grade X of senior high school.

METHOD

This Fun Adventure game media had been developed based on the ASSURE method (Analyze Learner, State Objectives, Select Media and Materials, Utilize Media and Materials, Require Learner Performance and Evaluate and Revise). The effectiveness trial of the valid media was conducted on 15 students of grade X MIA 2 SMAN 1 Sidayu Gresik in March 2018. Before testing, Fun Adventure game media had been validated by three validators. Validation results were expressed in very valid categories. The data were collected by using learning result test method and questionnaire method. The assessment instrument used the pre-test and post-test sheets and the response questionnaire.

The student learning outcomes were obtained from the pre-test and post-test on the knowledge aspect. It was compared with the minimum completeness standard that the school set for the biology subject, which was ≥ 75 . The learning outcomes were analyzed into gain score with the following formula (Hake, 1999):

$$g = \frac{\% (Sf) - \% (Si)}{100 - \% (Si)}$$

Information:

g : Gain

% (Si) : Percentage of pre-test score

% (Sf) : Percentage of post-test score

100 : Maximum score

The gain score obtained was interpreted using the gain score criteria table (Table 1) to determine the improvement of student learning outcomes.

Table 1. Gain Score level criteria (Hake, 1999)

G	Category
0,70 < g ≤ 1,00	High / Highly Effective
0,30 < g ≤ 0,70	Medium / Quite Effective
0,00 < g ≤ 0,30	Low / Not Effective

The Fun Adventure game media can be expressed as having an increase in learning outcomes effectively if the gain score had ≥ 0.31 .

From the data of pre-test and post-test results, it can be seen the percentage of completeness of indicators. It was calculated by using the following formula.

$$\text{Completeness of Indicator} = \frac{\sum \text{Completed Student}}{\sum \text{all of student}} \times 100\%$$

The results of percentage analysis of the completeness of indicators were then interpreted by the scores of the indicators (Table 2).

Table 2. Criteria Interpretation of the percentage of the completeness learning outcomes (Riduwan dan Sunarto, 2013)

Percentage Range (%)	Category
0 ≤ k < 20	Not good
21 ≤ k < 40	Amateurish
41 ≤ k < 60	Pretty good
61 ≤ k < 80	Good
81 ≤ k ≤ 100	Very Good

Based on Criteria interpretation of the scores of the indicators, the indicator was considered to be very good if the completeness score percentage of students' learning outcomes had ≥ 81%.

The response analysis data of the students on the response sheet contained the questions with the choice of "Yes" or "No" answers. The percentage of students' responses to Fun Adventure game media can be determined by using the equation as follows:

$$\text{Student's responses} = \frac{\sum \text{"Yes" answered of students}}{\sum \text{all of student}} \times 100\%$$

Values were obtained then interpreted using the criterion of student score response scores (Table 3).

Table 3. Criteria Interpretation of Student Response (Riduwan dan Sunarto, 2013)

Percentage Range (%)	Category
0-20	Not Effective
21-40	Less Effective
41-60	Effective Enough
61-80	Effective
81-100	Very Effective

Based on the result of questionnaire of student response obtained, it can be concluded that Fun Adventure game media is effectively applied in the learning based on observation of student response when obtaining percentage of ≥ 61% with effective and very effective interpretation.

RESULTS AND DISCUSSION

Research result

Fun Adventure game media consist of a board games and many question cards about the fungi material. It designed as students adventured in the kingdom of

fungi. Every question in Fun Adventure game media was mostly designed to stimulate the students to analyze, evaluate, and create ideas in solving a problem around the fungus in life. Hence, it was expected that Fun Adventure game media was effective to improve their cognitive learning outcomes on the fungi material through high-level thinking skills performed.

The effectiveness of Fun Adventure game media was assessed based on students' cognitive learning outcomes with pre-test and post-test, as well as from student responses were filled by students on student response questionnaire.

On the pre-test and post-test sheets, each consists of four multiple choice questions and four description questions. The results of pre-test and post-test were used to measure the improvement of students' cognitive learning outcomes after learning activities using Fun Adventure game media. The recapitulation of data on the improvement of student learning outcomes was presented in Table 4.

Table 4. Recapitulation of Data Improving Student Learning Outcomes with Gain Score

Student	Pre-test		Post-test		Gain Score	Category
	Value	Category	Value	Category		
1 st	26.32	IC	84.21	C	0.76	High
2 nd	21.05	IC	73.68	IC	0.67	Medium
3 th	57.89	IC	94.74	C	0.88	High
4 th	21.05	IC	84.21	C	0.8	High
5 th	31.58	IC	94.74	C	0.92	High
6 th	73.68	IC	84.21	C	0.4	Medium
7 th	52.63	IC	78.95	C	0.56	Medium
8 th	36.84	IC	94.74	C	0.92	High
9 th	84.21	C	97.37	C	0.83	High
10 th	26.31	IC	81.58	C	0.75	High
11 th	21,05	IC	71.05	IC	0.63	Medium
12 th	42.1	IC	76.31	C	0.59	Medium
13 th	42.1	IC	78.95	C	0.64	Medium
14 th	52.63	IC	86.84	C	0.72	High
15 th	31.58	IC	84.21	C	0.77	High
Average					0.73	High

Maximum Completeness Criteria = 75

C = Complete

IC = Incomplete

Information of Gain Score:

0.70 < g ≤ 1.00 : High/ Very Effective

0.30 < g ≤ 0.70 : Medium / Effective Enough

0.00 < g ≤ 0.30 : Low / Not Effective

Based on the data recapitulation of the student learning outcomes which obtain 'gain score' in Table 4, it obtained the average gain score of 0.73, included in the high category. This can be interpreted that the average student experience a high increase of the learning outcomes after implementing the learning

process using the media game 'Fun Adventure' on fungi material. The learning outcomes can be declared that complete if the value had ≥ 75 .

In addition to the data value of students from the pre-test and post-test results, the percentage of completeness in each indicator can also be seen. The purpose of evaluating the indicators was to knowing what indicators had been and had not been achieved by the students. Table 5 presented the completeness of each indicator based on pre-test and post-test results.

Table 5. Completed Indicator Based on Pre-test and Post-test Results

Number	Indicator	Pre-test		Post-test	
		Completeness (%)	Category	Completeness (%)	Category
1	Identifies organisms that belong to the fungi kingdom by several images	60	Enough	86.67	Very Good
2	Describe the structure of the fungus by the image	53.33	Not Good	93.33	Very Good
3	Group fungus based on the special characteristics of each group of fungi	40	Very Not Good	86.67	Very Good
4	Sort the stages of fungus reproduction by image	33.33	Very Not Good	73.33	Good
5	Consider proper effort in a problem involving the role of lichen or mycorrhiza	50	Not Good	70.83	Good
6	Make proposed efforts to prevent harmful fungus contamination	48	Not Good	100	Very Good
7	Analyze the influence of one factor on fermentation process to fermented product	33.33	Very Not Good	87.78	Very Good
8	Analyze the conditions of living fungi	17.78	Very Not Good	74.44	Good
Average		41.97		84.13	
Category		Not Good		Good	

Information of Completeness (c) (%):

- $0 \leq c < 20$: Not Good
- $21 \leq c < 40$: Less Good
- $41 \leq c < 60$: Good Enough
- $61 \leq c < 80$: Good
- $81 \leq c \leq 100$: Very Good

Based on Table 5, it showed that each indicator increased in the percentage of mastery from pre-test to post-test. The average percentage of overall completeness of the indicators was 41.97% (the category was not good) based on the pre-test result. After doing the learning using Fun Adventure game media, the average percentage of the completeness of all indicators based on post-test result has increased. That was equal to 84.13% (the category was good).

The effectiveness of game media was also reviewed from student questionnaire results after using Fun Adventure game media. Data from the recapitulation of student response questionnaire can be seen in Table 6.

Table 6. Recapitulation of Student Response Data Result After Using Media of Fun Adventure Game on Fungi Material

Number	Statement	The Number of student's answered		Percentage of "Yes" answered (%)
		Yes	No	
		1	Design of Fun Adventure game media is interest	
2	The rules of playing in Fun Adventure game media are easy to understand	15	0	100
3	The formulation of the sentence on the question card is clear and easy to understand	15	0	100
4	Explanation of the concept of the material in the answer card is clear and easy to understand	15	0	100
5	The pictures that exist in the game media Fun Adventure are interest	14	1	93.33
6	Fun Adventure game activity is a fun learning activity	14	1	93.33
7	Fun Adventure games can help students gain some new knowledge about fungus	15	0	100
8	Fun Adventure game activities can help students to practice critical thinking about fungus	14	1	93.33
9	Fun Adventure games make	15	0	100

Num-ber	Statement	The Number of student's answered		Percentage of "Yes" answered (%)
		Yes	No	
	students more easily understand the fungi material			
Average				97.78
Category				Very Effective

Information of Score (%):

0-20 : Not Effective 61-80 : Effective
 21-40 : Less Effective 81-100 : Very Effective
 41-60 : Effective Enough

Based on the results of the data recapitulation questionnaire response students, obtained data that the students provide a positive response to the media game Fun Adventure. It was based on a percentage gain of 97.78% (The category was very effective).

Discussion

Fun Adventure game media was declared effective if it can improve the students' cognitive learning outcomes. It measured based on the results of pre-test and post-test as well as student responses.

According to research in biology learning was conducted by Darma et al. (2014), the measurement of the average pre-test and post-test differences aimed to compare how much the percentage increase in value from before and after the treatment. Hence, the Fun Adventure game media was expected to help improve the students' learning outcomes in fungi material in grade X of senior high school.

Based on data of students' cognitive learning outcomes obtained from pre-test and post-test values (Table 4), the percentage of students completed was 13.33% at the time of pre-test. The low threshold during the pre-test due to the students' ability to think more critically about the fungi material was low. Hence, students were less able to answer the questions contained on the pre-test sheet. But after doing the learning using Fun Adventure game media, the cognitive learning outcome of students had increased. This was because the game media can provide opportunities for students to learn with stimulus in a fun situation. Hence, it can solidify the concept of material that had been taught before the evaluation test (Ningtyas, 2006). This was evidenced by the increasing percentage of students who completed at the post-test. that is equal to 86.67 %.

The completeness was based on the standard value of maximum completeness criteria of Biology subjects in SMA Negeri 1 Sidayu Gresik, students are said to be

complete when obtaining value ≥ 75 . There were two students whose post-test score is still below the value of maximum completeness criteria were the second student and eleventh students. In the game, the second student acted as one of players, while the eleventh student acted as a judge.

The incompleteness of the post-test learning result by second student was caused by the activeless factor of the student in game group. The student did not enforce the rules of the game (to respond, or criticize the other player's answered). In addition, the second student tend to be often wrong in answering questions on the question cards. This can be caused by the lack of ability of students in understanding the fungi material. Hence, students were less able to answer questions both at the time of the game and on the post-test sheet. Other factors can be caused because the game media was not in accordance with the student learning style. although involved in a game, It made she still less able to actively engage and understand the fungi material well. It was because students tend to prefer his own learning style more appropriate with himself. This was in accordance with Rohwati (2012) which said that not all students were able to learn by using other learning media such as game media.

The incompleteness of the post-test learning result by the eleventh student was caused by a lack of students in practicing answering questions during the game. This happens because the eleventh student acted as a judge, where the judge's jobs were to take the question card when the player stoped on a box, picks up an answer card to make sure the player answers the question correctly, picked up a penalty card when the player can not answered the question correctly, and record the game results in the game notebook. Actually, the judge can still gain an understanding of the fungi material because she followed and noted the concept conclusions of the answers to questions obtained by other participants, but the judge was not accustomed to answer these questions directly. The judge was lacking practice in managing his thinking ability, so the information processed in his memory is less meaningful. This was consistent with Thronidike's behavioristic theory that practice is a key to learning success. If the exercise is often done, it will become a habit. Hence, if the students want to understand a teaching material, they should practice repeatedly (Nursalim et.al, 2007).

From the post-test and pre-test result, the improvement of student learning outcomes can be known by gain score method. The result of the gain score calculation was presented in Table 3 which showed that the average of Gain score was 0.73. It

included in the high category. It showed that the average student experienced a significant improvement of learning result between before and after doing fungi learning activity using Fun Adventure game media. The high increased in the percentage of learning outcomes from pre-test and post-test showed that Fun Adventure game media can improve the students' learning outcomes. It caused in playing the Fun Adventure game media, students were required to think logically and critically in analyzing the answers of questions that students get when playing. This is consistent with Cheng and Chung's (2012) that learning media using games can improve student learning outcomes especially games that require logical reasoning.

Based on the data presented in Table 5, it can be seen that there was the increasing of completeness on each indicator based on the learning outcomes measured by pre-test and post-test. The completeness of indicators at the pre-test, all indicators got percentage of results ≤ 60 that included in the very not good, not good, and good enough categories. While based on post-test learning results, the completeness of all indicators got percentage of results ≥ 70 that included in the good and very good category. This showed that after doing the Fun Adventure game, students had been able to manage their cognitive capability and they able to solve a problem related to the fungi material. According to Irawan et al. (2015), the cognitive processes can be applied in educational game as a characteristic that can help students to have some other skills like organizing and critical and divergent thinking. Through the Fun Adventure game media, students be able to associate their initial knowledge with new knowledge gained in Fun Adventure games. So they were helped in doing post-test problems easily. With some questions on Fun Adventure game media, students were stimulated to think more critical to propose ideas and to make ideas for solving a problem.

The first indicator, namely "identifying organisms belonging to the fungi kingdom by several drawings", showed an increase of 60% of pre-test percentages (sufficient category) to 86.67% (very good category) in post-test. It was because while using the media game 'Fun Adventure', many students were faced with pictures of fungi on the board game. Students were required to guess the name of the group from the representatives of the fungus image based on the identification of the characteristics that exist. Hence, students can finally understand and be able to identify which organisms belong to the fungi kingdom or that was not included through the images available in the post-test questions. More often the students identified through the image,

they will caninculcate the material longer in their memory (Susanto, 2009).

The second indicator, namely "describing the fungi structure by the images", showed an increase from the 53.33% pre-test percentage (included in the bad category) to 93.33% in the post-test (included in the very good category). It was because during the use of Fun Adventure game media, students are required to describe the fungi structure on the image when stopping on one of the columns. Hence, students can mention the group of fungi as a requisite to be able to open the question card. In addition, in the question cards, there are four questions that discuss about the structure of fungi. It is based on the observation, that question cards also often opened or through by the player. Hence, it often answered and discussed repeatedly during the game. Santrock (2010) said that repetition (rehearsal) over time will retain longer information in memory.

The third indicator, namely "grouping fungi based on the special characteristics of each group of fungi", showed an increase of the percentage of pre-test by 40% (in the very not good category) increasing to 86.67% in post-test (included in very good category). It was because during the use of Fun Adventure game media, students are required to be able to name the group of fungi based on the special characteristics of the fungi group on each picture where it stopped in each box. Hence, students will repeatedly pass through the stage and finally they can use the knowledge which they had to answer questions related to the classification of fungi based on the special characteristics of the fungus. It was in accordance with the opinion of Woolfolk (1995), that a knowledge should be taught step by step to form the expected final knowledge. It caused at each stage, students will have the opportunity to gain reinforcement of information that was in their capabilities and developed their ability in the direction of new knowledge.

The fourth indicator, namely "sorting the stages of fungus reproduction based on the picture", showed an increase of pre-test percentage of 33.33% (very bad category) to 73.33% in post-test (good category). It was because during used the Fun Adventure game media, there was a question in the question card that stimulated students to be able to understand the concept of fungi reproduction. In the matter, students were asked to analyze why in a group of fungi, the cariogamous stage did not occur immediately after plasmogami. However, the question of the reproductive phases was limited. Hence, the improvement of the completeness of the indicators at post-test was not too high. According to Slavin (1994), to improve the thinking ability, students

should be required more practice with different types of questions because the more different types of problems are solved, the more students will practice thinking to solve the problem.

The fifth indicator namely “considering the right effort in a problem involving the role of lichen or mycorrhiza”, showed an increase of 50% pre-test percentage (the bad category) to 70.83% in post-test (included in good category). It was because during used the Fun Adventure game media, there were questions in the question card that stimulate students to be able to create or propose an idea about the problems that occur in the surrounding environment associated with the existence of mycorrhizal or lichen. There were also questions that asked students to make a prediction about the role of mycorrhizal or lichen involvement in its application in life. However, the percentage improvement of indicator was not too high. The questions in the test provided an opportunity for students to propose or consider the efforts they deem appropriate in dealing with a problem involving the role of lichen or mycorrhiza. Most students did not understand the concept in terms of the positive and negative roles of the lichen or the mycorrhiza. Hence, it made the students tend to be less precise in considering the effort in the case of the question. To be able to propose an idea or attempt to deal with a particular problem, students needed to identify and analyze problems presented from different sides and points of view to produce alternative solutions (Sanchez et al., 2008).

The sixth indicator namely “making a proposed effort to prevent harmful fungal contamination”, showed an increase of the 48% pre-test percentage (the bad category) becomes 100% in the post-test (included in the very category). It was because during the use of Fun Adventure game media, there were problems that stimulate students to be able to give suggestions in handling cases of fungal infections to other organisms. In addition, there were also other problems that stimulate students to think analysis of the conditions that support the growth of fungi. Hence, that students can organize their way of thinking and able to provide suggestions for prevention of fungal contamination in cases we often encounter in everyday life. This was in accordance with Slavin’s opinion (1994) that one of the keys to teaching problem solving is to provide authentic problems and arouse students' interest, because it will be an important role in the thinking result.

The seventh indicator, namely “analyzing the influence of one factor in the fermentation process to the fermented product”, showed an increase of pre-test percentage of 33.33% (the category was not very good)

increased to 87.78% in post-test (included in very good category). It was because during the use of Fun Adventure game media, students were trained to analyze the influence of several factors in the fermentation process involving the role of fungi by the problems contained in the numbers of questions. Based on the record traces of the game, that question cards also often opened or through by the player. Hence, it often answered and discussed repeatedly during the game. Each of these questions are presented in tables, graphs, and case studies. These presentation forms were an effective means for presenting and describing important components in a problem that will be analyzed (Slavin, 1994). In analyzing a problem, the student was able to recognize and distinguish the causal factor and the effect of the problem by relating the known aspects and variables (Anderson and Krathwohl, 2001). Thus, at the post-test, the average answered of students is correctly and the completeness indicator on the number increased very well.

The eighth indicator, namely “analyzing the living conditions of fungi”, showed increase of the pre-test percentage of 17.78% (very not good category), rised to 74.44% in the post-test (included in enough category). It was because the most student initially only knows that the fungus lives in a humid place, but they did not develop the analytical ability of the condition. In the question cards of Fun Adventure game media, questions were presented that stimulated students to analyze the conditions appropriate for growth, how fungi adapted to unfavorable habitats. That question cards also often opened or through by the player. Hence, it often answered and discussed repeatedly during the game. It was caused students will be able to understand a teaching material to understand if practicing to analyze a problem repeatedly (Nursalim et al., 2007). Thus, at the post-test, the average answered of students is correctly and the completeness indicator on the number increased to be good.

In addition to using data to improve student learning outcomes, the effectiveness of Fun Adventure game media was reviewed based on the results of student responses obtained by a questionnaire method. That was distributed to 15 students who have conducted learning activities using Fun Adventure game media that tested. The student response questionnaire consisted of nine questions. Based on Table 6, the average data on the percentage of student responses that answered "Yes" was 97.78% and included in the category very effective. Based on the recapitulation of student questionnaire results, there were six questions got the percentage of maximum positive response value

of 100% and there were three questions get the percentage of positive responses that are less than the maximum, which was 93.33%.

The appearance of the media game Fun Adventure design got maximum response value. It was because of suggestions and input validator had been used to improve the appearance of Fun Adventure game media. So, it was worthy to be tried. Question items about the ease to understand the rules of playing of the game media Fun Adventure, got the maximum response value. It was because the game rules in the manual have been described clearly, detail, and coherently so easily understood by the students and greatly assisted students in operating the Fun Adventure game media. The clearness of game rules can support the achievement of the game's objectives (Sadiman et.al., 2010).

The question items on the clarity and ease for understanding the formulation of questionnaires on the question cards and the elaboration of the material on the answer cards, got the maximum response value. It was because the order of sentence and the use of language had been adjusted with the general guideline for bahasa. Hence, it was not difficult to understand and did not contain multiple interpretations. A good learning media had a clear sentence structure, understandable, did not lead to multiple interpretations and in accordance with the level of thinking of students (Depdiknas, 2008).

The question items about whether or not a new knowledge about fungi obtained by the students, got maximum response value. It was because the fungi content presented in Fun Adventure game media, both presented on the question card and the answer card. Not only based on theoretical study about the fungi material, but also most authentic issues and stimulate students to think more critically. Hence, much new knowledge gained by students after using Fun Adventure game media. Question items about the ease of understanding the fungi material by using the game media Fun Adventure, got the maximum response value. It was because the fungi material presented in Fun Adventure game media had been adjusted to the indicators and learning objectives achieved and packaged in an easy ways to understand the explanation. Hence, that students felt more easy to understand the material of fungi through the Fun Adventure game media. This was in accordance with the statement of Salirawati (2012), that one of the requirements of good media used a clear statement of questions in order to be easily understood.

The item about whether or not the drawings contained in Fun Adventure game media got a positive response of 93.33%. It need for the use of interesting images in the media, because it can generate interest and

bring psychological influences on students in the learning process using the media (Arsyad, 2014).

Items about fun or not learning activities of fungi materials using Fun Adventure game media, and can or not playing activity of Fun Adventure games help students to practice critical thinking about fungi, each item got a positive response rate of 93.33%. The item was not getting the maximum score because some students who gave negative responses are less actively involved in the game Fun Adventure. This can be overcome by the role of teachers as educators. Teachers should be able to manage student activities during the learning process using the Fun Adventure media game. Mukaromah et al. (2014) explained that every learning activity, teachers should create learning conditions as possible. Hence, that students can enjoy the learning condition that was created by the teacher and the purpose of learning was achieved.

CLOSING

Conclusion

Based on data acquisition in this development research, it can be concluded that the development of Fun Adventure game media of fungi material was declared very effective based on the cognitive learning outcome of students and the positive response result from the students.

Suggestion

Suggestion given related to this research was the rotation of roles (between judges and players). Hence, all of the students can better practice in processing their thinking abilities.

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